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| ***1η******Εργασία*** |
| **2017**-**2018** |
| ***ΟΙΚΟΛΟΓΙΑ*** |
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# ΠΕΡΙΕΧΟΜΕΝΑ

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# Ecology

Ecology (from Greek: οἶκος, "house", or "environment"; -λογία, "study of")[A] is the branch of biology[1] which studies the interactions among organisms and their environment. Objects of study include interactions of organisms with each other and with dead components of their environment. Topics of interest include the biodiversity, distribution, biomass, and populations of organisms, as well as cooperation and competition within and between species. Ecosystems are dynamically interacting systems of organisms, the communities they make up, and the non-living components of their environment. Ecosystem processes, such as primary production, pedogenesis, nutrient cycling, and niche construction, regulate the flux of energy and matter through an environment. These processes are sustained by organisms with certain life history traits. Biodiversity means the varieties of species, genes, and ecosystems, enhances certain ecosystem services.

## Ecology 2

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# Biodiversity

Biodiversity (an abbreviation of "biological diversity") describes the diversity of life from genes to ecosystems and spans every level of physical organization. The term has several interpretations, and there are many ways to index, measure, characterize, and represent its margled organization.[12][13][14] Biodiversity includes species diversity, ecosystem diversity, and genetic diversity and scientists are interested in the way that this diversity affects the complex ecological processes operating at and among these respective levels.[13][15][16] Biodiversity plays an important role in ecosystem services which by definition maintain and improve human quality of life.[14][17][18] Conservation priorities and management techniques require different approaches and considerations to address the full ecological scope of biodiversity. Natural capital that supports populations is critical for maintaining ecosystem services[19][20] and species migration (e.g., riverine fish runs and avian insect control) has been implicated as one mechanism by which those service losses are experienced.[21] An understanding of biodiversity has practical applications for species and ecosystem-level conservation planners as they make management recommendations to consulting firms, governments, and industry.[22]

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# Traits of individual organisms

Understanding traits of individual organisms helps explain patterns and processes at other levels of organization including populations, communities, and ecosystems. Several areas of ecology of evolution that focus on such traits are life history theory, ecophysiology, metabolic theory of ecology, and Ethology. Examples of such traits include features of an organisms life cycle such as age to maturity, life span, or metabolic costs of reproduction. Other traits may be related to structure, such as the spines of a cactus or dorsal spines of a bluegill sunfish, or behaviors such as courtship displays or pair bonding. Other traits include emergent properties that are the result at least in part of interactions with the surrounding environment such as growth rate, resource uptake rate, winter, and deciduous vs. drought deciduous trees and shrubs.

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| LESSON | TOPIC | ASSIGNMENT | Points | DUE | |
| 1 | What is Distance Learning? | Wiki #1 | 10 | March 10 | |
| Presentation | 20 |  | |
| 2 | History & Theories | Brief Paper | 20 | March 24 | |
| Spring Break | | | | | |
| 3 | Distance Learners | Discussion #1 | 10 | | April 7 |
| Group Project | 50 | | April 14 |
| 4 | Media Selection | Blog #1 | 10 | | April 21 |

# Biosphere

The largest scale of ecological organization is the biosphere: the total sum of ecosystems on the planet. Ecological relationships regulate the flux of energy, nutrients, and climate all the way up to the planetary scale. For example, the dynamic history of the planetary atmosphere's CO2 and O2 composition has been affected by the biogenic flux of gases coming from respiration and photosynthesis, with levels fluctuating over time in relation to the ecology and evolution of plants and animals.[46] Ecological theory has also been used to explain self-emergent regulatory phenomena at the planetary scale: for example, the Gaia hypothesis is an example of holism applied in ecological theory.[47] The Gaia hypothesis states that there is an emergent feedback loop generated by the metabolism of living organisms that maintains the core temperature of the Earth and atmospheric conditions within a narrow self-regulating range of tolerance.[48]

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# Cognitive ecology

Cognitive ecology integrates theory and observations from evolutionary ecology and neurobiology, primarily cognitive science, in order to understand the effect that animal interaction with their habitat has on their cognitive systems and how those systems restrict behavior within an ecological and evolutionary framework.[128] "Until recently, however, cognitive scientists have not paid sufficient attention to the fundamental fact that cognitive traits evolved under particular natural settings. With consideration of the selection pressure on cognition, cognitive ecology can contribute intellectual coherence to the multidisciplinary study of cognition."[129][130] As a study involving the 'coupling' or interactions between organism and environment, cognitive ecology is closely related to enactivism,[128] a field based upon the view that "...we must see the organism and environment as bound together in reciprocal specification and selection..."

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